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B65D 77/28 // B65D 17/50

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B8D DCE D7G D7PY
U1S S1106

(56) Documents Cited
GB 2217677 A GB 1175582 A US 4690294 A
US 4265363 A US 3656654 A

(58) Field of Search
UK CL (Edition O) B8D DCE DCF19 DCG DFX
INT CL[6] A47G 21/18 , B65D 17/50 77/24 77/28

(54) Beverage container with enclosed straw

(57) A drink container 10, such as a bottle with a crown cap or an easy open can, encloses a straw 16 which comes out of the container, at least partly, once the container is opened. Preferably the straw has at least one portion 38,40 more flexible than the rest of the straw, the straw engaging the inside wall 30 of the container at these flexible portion(s) and at either end when the container is closed. In one embodiment, the enclosed straw is not attached to the container and the portion of the straw 36 nearer the container base is held curved and under stress so that, when the container is opened, the straw pops out. In other embodiments, the straw is separately formed and removably attached to the container closure 32 via a spigot 42 or strap (66, Fig 5) or is integrally formed with the container closure and detached by tearing, in both cases the opening of the closure drawing the straw from the container. The container may have means for closely fitting the straw, eg a diaphragm 44 or a guide element (94, Fig 9) so as to prevent spilling of the contents when the container is opened. The container may have a ring pull (62, Fig 6) or an aperture which is sealingly closed by a membrane and a manually operable slider which peels the membrane from the aperture (Fig 11).

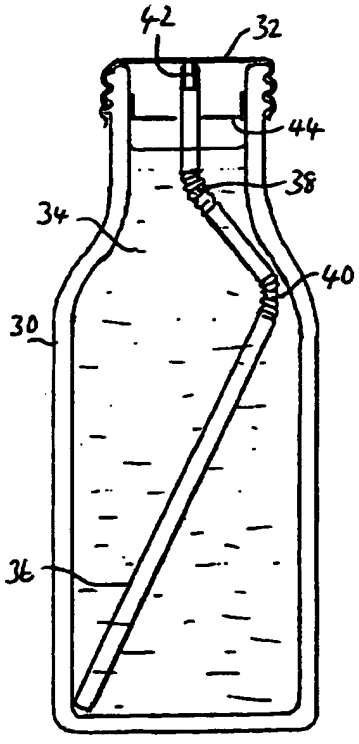

FIG.3

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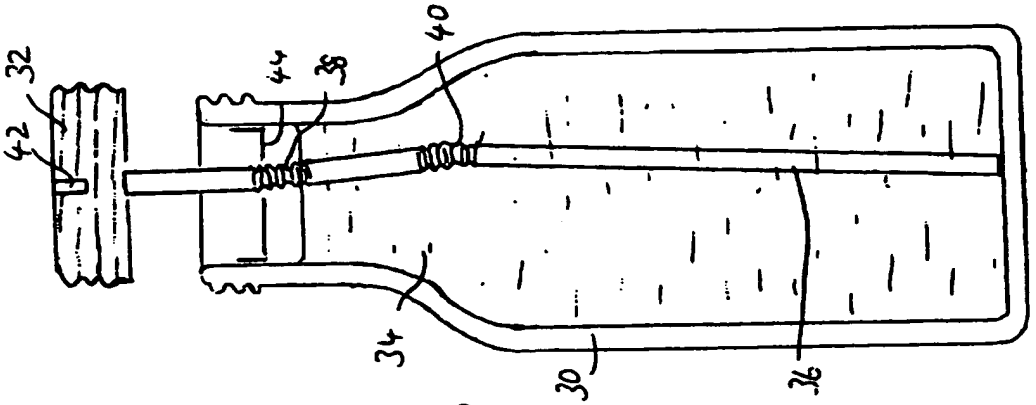


FIG. 4

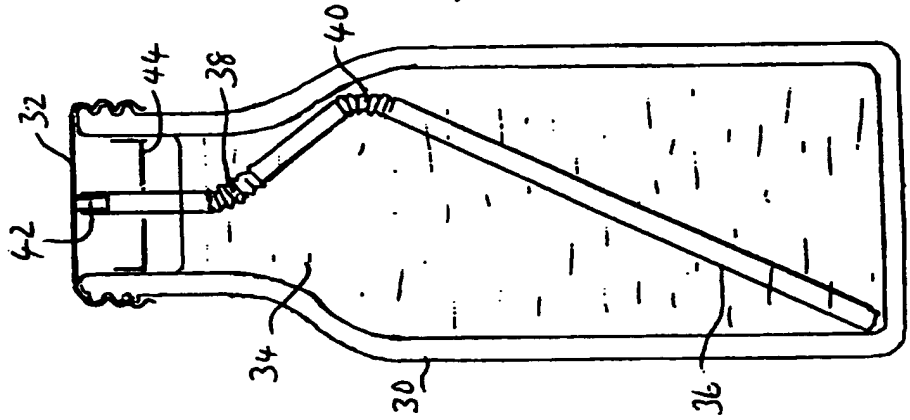


FIG. 3

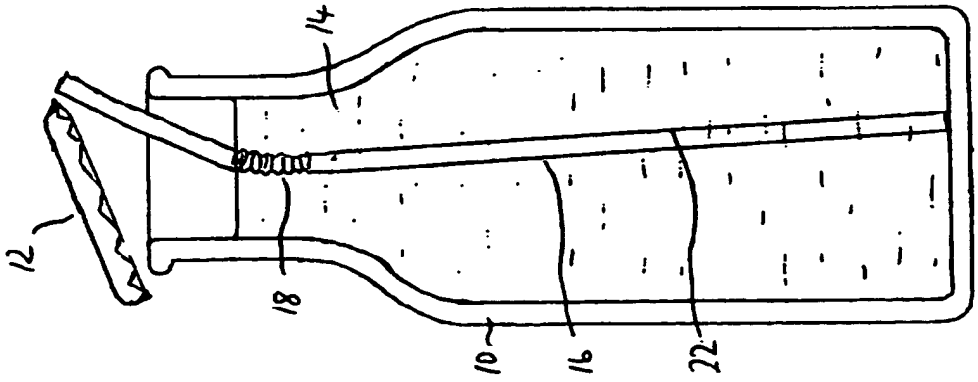


FIG. 2

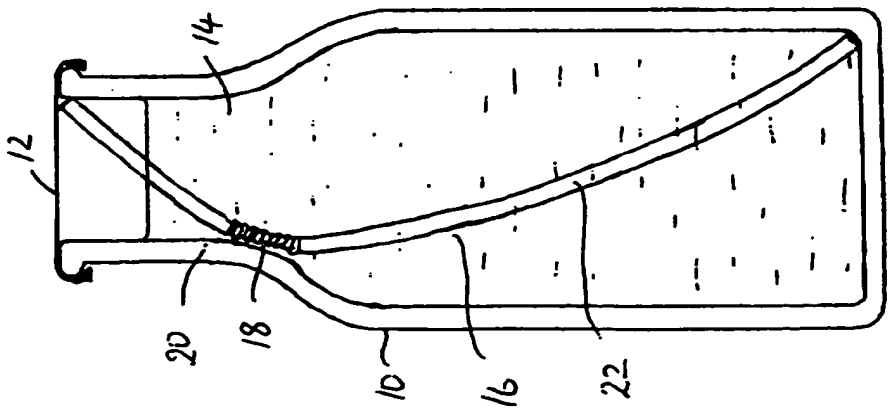


FIG. 1

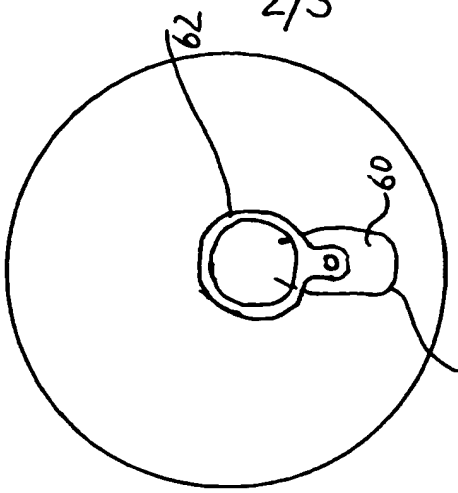


FIG. 6

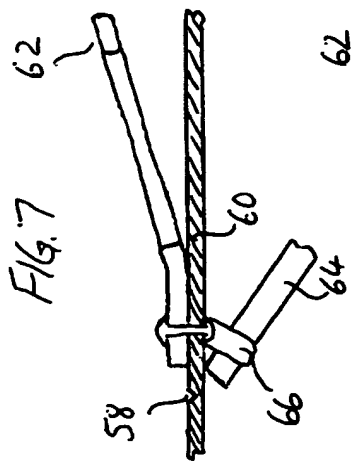


FIG. 7

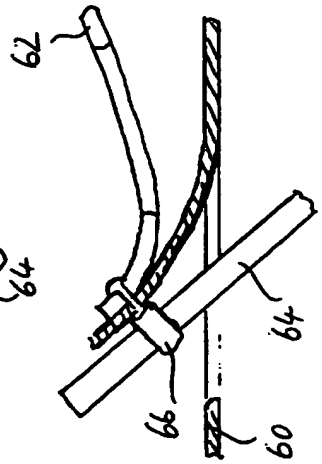


FIG. 8

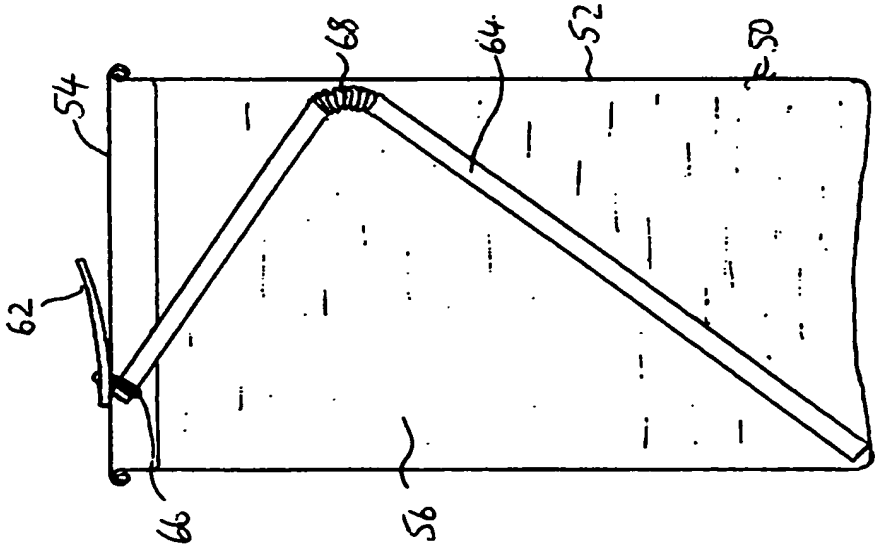


FIG. 5

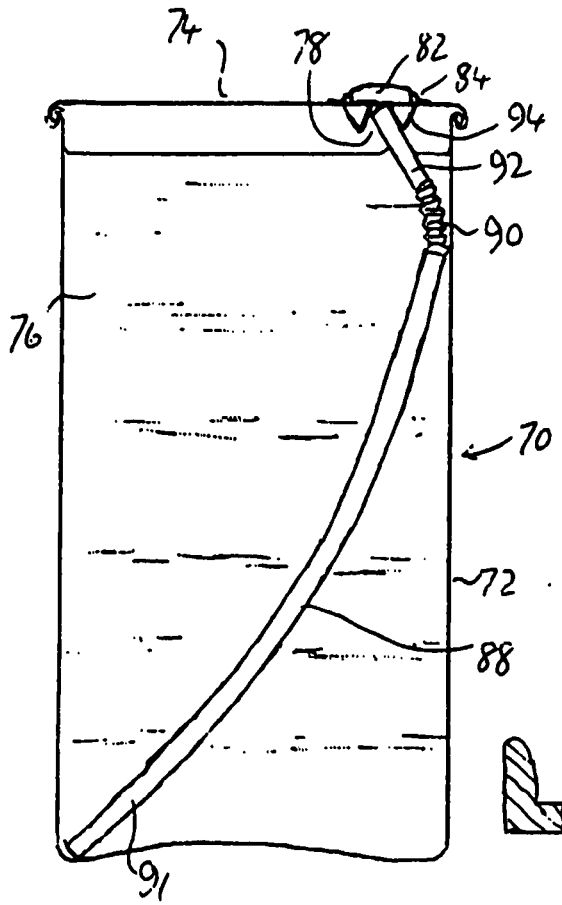


FIG. 9

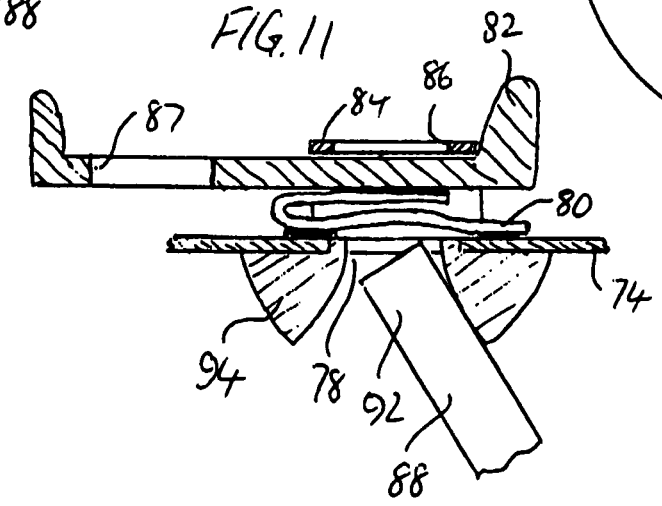
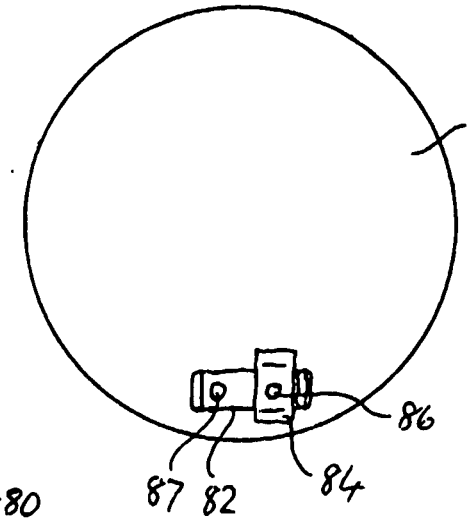


FIG. 11

FIG. 10



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TITLE

Drink Containers

DESCRIPTION

This invention relates to drink containers.

Background to the Invention

There is a vast market in ready-to-drink drinks, such as still and fizzy waters, soft drinks and juices, which are sold in single portion containers, such as bottles, cans and fabricated boxes of plastics-coated card. Often these drinks are consumed by pouring the drink into a drinking vessel, such as a glass, and by drinking from the glass. However, often a drinking vessel is not to hand, and so the imbiber will swig the drink straight from the container. (Indeed some people, on occasions, prefer to drink straight from the bottle or can.) This presents a problem in that the neck of the bottle, or top of the can, may be contaminated with dirt, dust or germs, which then pass to the mouth of the consumer. Furthermore, whereas with one early design of ring-pull can, the ring-pull and a portion of the can lid are completely removed from the can, with a more recent design of this type, the portion of the can lid is pushed inside the can, and any contaminants on the lid may be washed into and contaminate the drink, whether the drink is consumed straight from the can or is poured into a glass. Also, one commonly available type of fabricated card drink box is supplied with a straw, which is pushed through a weakened part of the drink box top in order to open the drink box. The weakened part of the drink box top usually forms a slight depression in the box top, in which dust and dirt is prone to collect, and when the straw is pushed into the box the contaminants are also likely to be pushed inside the box. Various aspects of the present invention are concerned with tackling at least some of these problems.

Although it is dangerous to drink (any type of drink) and drive at the same time, it is an all too common occurrence on the roads. The dangers arise partly from the driver not having full control of the vehicle and not being able to concentrate completely on the road whilst

they open the drink container. The dangers also arise partly from the driver not being able to see properly as they tilt their head back to swig straight from the container, especially in the case of a can when the contents are low. Various aspects of the present invention are concerned with tackling at least one of these problems.

Summary of the Invention

In accordance with the present invention, there is provided a drink container containing a straw which comes at least partly out of the container when the container is opened. The container is therefore provided with its own straw which is sealed in the container until the container is opened and is therefore protected from contamination. Furthermore, because, when the container is opened, the straw comes out of the container, rather than being inserted into it, there is less risk of contaminants entering the container. It will also be appreciated that, in use, there is no need for the imbiber's lips to touch the outside of the container.

In some embodiments of the invention, the straw, before the container is opened, is held in a curved shape and under stress in the container, the stress being relieved when the container is opened so that the straw pops at least partly out of the container. Due to this action, in some embodiments of the invention, it is possible to drink the contents of the container without touching the straw other than with one's lips.

Preferably, the straw has at least one flexible portion part-way along its length which is/are arranged to have less bending stiffness than the remainder of the straw. In this case, the straw, before the container is opened, preferably engages the inside of the container at the two ends of the straw and at the, or at least one of the, flexible portion(s). Also, in this case, a lower portion of the straw is preferably held in a curved shape and under stress in the container before the container is opened. By using a "bendy" straw, it is easier to provide a sufficient length of straw which can be used to suck the drink from the very bottom of the container, and yet completely accommodate the straw in the container before the container is opened.

The straw may be removably attached to a closure of the container, so that when the closure is opened the straw is drawn out of the container.

In some embodiments of the invention, when the container is opened and the straw protrudes therefrom, the container is a close fit around the straw. Therefore, if the container is knocked over, this feature prevents the contents gushing out.

The invention may be applied to many forms of generally conventional container, for example: a bottle with a screw top or a crimped top; a can, with a portion of a top wall of the can having a weakened periphery; or a container of fabricated sheet having an aperture in a top wall thereof, with a rupturable membrane closing the aperture.

The invention may also be applied to a container which has an aperture, a membrane which sealingly closes the aperture, and a manually operable slider which, when operated, peels the membrane away from around the aperture.

Specific Description of Embodiments of the Invention

Specific embodiments of the present invention will now be described by way of example with reference to the accompanying drawings, in which:

Figure 1 is a sectional side view of a Crown-corked bottle forming a first embodiment of the present invention, with the bottle top on;

Figure 2 is similar to Figure 1, but with the bottle top removed;

Figure 3 is a sectional side view of a screw-top bottle forming a second embodiment of the present invention, with the screw cap on;

Figure 4 is similar to Figure 3, but with the screw cap partly removed;

Figure 5 is a sectional side view of a can forming a third embodiment of the present invention, with the can closed;

Figure 6 is a plan view of the can of Figure 5;

Figure 7 is a view, to a larger scale, of part of Figure 5;

Figure 8 is similar to Figure 7, but with the can partly opened;

Figure 9 is a partial sectional side view of a can forming a fourth embodiment of the present invention, with the can closed;

Figure 10 is a plan view of the can of Figure 9; and

Figure 11 is a sectional side view to an enlarged scale of the opening of the can of Figure 9.

Referring to Figure 1, a conventional glass bottle 10 has a Crown-cork 12 and contains a fizzy drink 14. The bottle 10 also contains a plastics bendy straw 16 having a corrugated bendy portion 18, and upper and lower cylindrical portions 20, 22 which are stiffer than the bendy portion 16 but not completely rigid. The top end of the straw 16 engages the corner between the mouth of the bottle 10 and the Crown-cork 12. The lower end of the straw 16 engages the corner between the side and the bottom of the bottle 10. The bendy portion 18 engages the lower part of the inside of the neck 20 of the bottle 10. The arrangement is such that straw 16 is stressed with the lower portion 22 thereof held in a curved shape. Referring to Figure 2, when the Crown-cork 12 is removed, the stress in the straw 16 is relieved and the lower portion 22 thereof straightens so that the top of the straw 16 pops out of the mouth of the bottle 10 and can be used to consume the drink 14.

It will be appreciated that the arrangement described with reference to Figures 1 and 2 may be applied to a screw-top bottle.

Referring now to Figure 3, another embodiment of the invention will be described. A conventional screw-top glass bottle 30 has a screw cap 32 and contains a fizzy drink 34. The bottle 30 also contains a plastics bendy straw 36 having a pair of corrugated bendy portions 38, 40. The top of the straw is a push-fit onto a spigot 42 inside the screw cap 32. The spigot 42 may, for example, be integrally formed with a sealing lining of the screw cap 32. (Alternatively, the screw cap 32 may have a socket into which the top of the straw is a press fit, or the straw may be integrally formed with the cap lining and have perforations to facilitate tearing of the straw from the cap.) From the spigot 42, the straw 36 extends

vertically downwards to the upper bendy portion 38, and then bends sideways and across to one side of the bottle 30 at the lower bendy portion 40 and then bends back to the opposite side of the bottle 30 near its bottom. Referring to Figure 4, when the cap 32 is removed from the bottle 30, the top of the straw 36 is drawn out of the bottle 30. The spigot 42 can then be removed from the top of the straw 36, and the bendy portions 38, 40 of the straw 36 can be straightened or bent to a desired angle.

In a development of the arrangement described above, the neck of the bottle 30 is fitted internally with a diaphragm 44 having a central hole through which the straw 36 passes. The straw 36 is a fairly close fit in the hole, but not so close a fit that the straw 36 will seal the hole and cause either the straw 36 to be ejected from the bottle 30 or the cap 32 to be ejected from the straw 36 when the cap 32 is unscrewed due to the gas pressure generated by the drink 34. The diaphragm has the effect of preventing the drink 34 gushing out of the bottle 30 in the event that the bottle 30 falls over.

A further embodiment of the invention is shown in Figures 5 to 8. A drinks can 50 has a body 52 and a top 54 secured thereto in a conventional fashion, and contains a drink 56. The top 54 has a line of weakening 58 partly around an opening portion 60 of the top 54, and a ring pull element 62 is secured to the opening portion 60 so that, when the ring pull element 62 is pulled, the opening portion 60 opens outwardly, as shown in Figure 8. The can 50 contains a bendy straw 64 which, when the can is closed, has its top end secured by a breakable strap 66 beneath the opening portion 60. From its top end, the straw 64 extends downwards and sideways to the opposite side of the can body 52 where its bendy portion 68 is disposed, and from the bendy portion the straw 64 extends back across the can to the opposite corner with the base of the can body 52. Referring in particular to Figures 7 and 8, when the ring pull element 62 is pulled, the line of weakening 58 tears, and the opening portion 60 is bent up. The strap 66 pulls the top end of the straw 64 out of the can 50 with the bending of the opening portion 60, and the drinker can then break the strap to release the straw 64, which can then be used for drinking.

Another embodiment of the invention will now be described with reference to Figures 9 to 11. A drinks can 70 has a body 72 and a top 74 secured thereto in a conventional fashion, and contains a drink 76. The top 74 has an aperture 78 which is sealed closed by one end of

a flexible closure strip 80. The other end of the closure strip 80 is folded back over the aperture 78 and is bonded to a slider element 82 which is mounted on the top 74 of the can for sliding movement beneath a strap 84 which is attached to the can top 74. The strap has a hole 86 which is aligned with and of larger diameter than the aperture 78 in the can top 74, and the slider element 82 also has a hole 87 which is of larger diameter than the aperture 78 in the can top 74 and which becomes aligned therewith when the slider element 82 is moved to the right as viewed in Figures 10 and 11. A bendy straw 88 is disposed in the can 70 and extends upwardly across the can, and then bends back at its bendy portion 90 so that its upper end 92 enters the aperture 78 in the can top 74 and abuts the underside of the closure strip 80. Preferably, the straw 88 is stressed inside the can 70, with the lower portion 91 of the straw 88 taking up a curved shape. In order to open the can 70, the slider element 82 is moved to the right, as viewed in Figures 10 and 11. Such movement of the slider element 82 peels the closure strip 80 from around the aperture 78 in the can top 74 to unseal the can, and at the end of the movement to the right of the slider element 82, the hole 87 in the slider element 82 becomes aligned with the aperture 78 in the can top 74 and the hole 86 in the strap, so that the upper end 92 of the straw 88 can pop out of the can relieving the stress in the straw. As shown in Figure 11, a guide element 94 may be fitted beneath the can top 74 to define the aperture 78. The guide element 94 has an upwardly and inwardly tapering hole, which at its smallest dimension is a close, but free, fit around the straw 88. The guide element 94 serves firstly to assist in proper location of the straw 88 during manufacture of the can, and secondly to prevent the drink gushing out of the can if the can is knocked over.

It will be appreciated that many modifications may be made to the embodiments described above, which are given by way of example only, without departing from the present invention.

CLAIMS

1. A drink container containing a straw which comes at least partly out of the container when the container is opened.

2. A container as claimed in claim 1, wherein the straw, before the container is opened, is held in a curved shape and under stress in the container, the stress being relieved when the container is opened so that the straw pops at least partly out of the container.

3. A container as claimed in claim 1 or 2, wherein the straw has at least one flexible portion part-way along its length which is/are arranged to have less bending stiffness than the remainder of the straw.

4. A container as claimed in claim 3, wherein the straw, before the container is opened, engages the inside of the container at its two ends and at the, or at least one of the, flexible portion(s).

5. A container as claimed in claim 3 or 4, wherein a lower portion of the straw is held in a curved shape and under stress in the container before the container is opened.

6. A container as claimed in any preceding claim, wherein the straw is removably attached to a closure of the container, so that when the closure is opened the straw is drawn out of the container.

7. A container as claimed in any preceding claim, wherein, when the container is opened and the straw protrudes therefrom, the container is a close fit around the straw.

8. A container as claimed in any preceding claim, in the form of a bottle with a screw top or a crimped top.

9. A container as claimed in any of claims 1 to 7, in the form of a can, a portion of a top wall of the can having a weakened periphery.

10. A container as claimed in any of claims 1 to 7, in the form of fabricated sheet having an aperture in a top wall thereof, with a rupturable membrane closing the aperture.

11. A container as claimed in any of claims 1 to 7, and having an aperture, a membrane which sealingly closes the aperture, and a manually operable slider which, when operated, peels the membrane away from around the aperture.

12. A container as claimed in any preceding claim and containing a potable drink.

13. A container substantially as described with reference to the drawings.

9

The Patent Office

Application No: GB 9602142.3 **Examiner:** Gavin Dale
Claims searched: 1-13 **Date of search:** 11 March 1996

Patents Act 1977
Search Report under Section 17

Databases searched:

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:

UK Cl (Ed.O): B8D (DCE, DCF19, DCG, DFX)

Int Cl (Ed.6): B65D 17/50, 77/24, 77/28. A47G 21/18

Other:

Documents considered to be relevant:

Category	Identity of document and relevant passage		Relevant to claims
X	GB 2217677A	(CHUANG-SHENG LIN) See figures 2 and 2A	1,3,4, 7,9,12
X	GB1175582	(REINERY) See figure 5	1,4,7, 10,12
X	US 4690294	(ROBERT JONES) See figure 2	1,3-6,9,12
X	US 4265363	(JOHN CONN) See column 2 lines 22-31	1-5,8,12
X	US 3656654	(BRINKLEY) See figure 4	1,3,4,6,9, 12

X	Document indicating lack of novelty or inventive step	A	Document indicating technological background and/or state of the art.
Y	Document indicating lack of inventive step if combined with one or more other documents of same category.	P	Document published on or after the declared priority date but before the filing date of this invention.
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